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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,624	03/25/2004	Keith Ritter	2004P02001 US	7473

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EXAMINER
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ZETTL, MARY E

ART UNIT	PAPER NUMBER
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2884

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



# Office Action Summary

Application No.

10/809,624

Applicant(s)

RITTER, KEITH

Examiner

Mary Zettl

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-9,11,13-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 2,4,10,12,18 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. The amendment filed on November 16, 2005 has been entered.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hefetz et al. (US 6,369,391 B1).

Regarding claims 1, 5, 8, 14, and 16, Hefetz et al. disclose scintillators, for use in gamma cameras for detecting gamma photon emissions and generating electrical energy (col. 6, lines 50-51) comprising: an array of photodetectors (Figure 1, item 16) and associated circuitry (Figure 1, item 18) for detecting and converting light energy to electrical energy (col. 6, lines 4-7); and a single scintillation crystal (Figure 1, item 12; col. 5, line 67) positioned in proximity to the array of photodetectors for detecting gamma photon emissions and generating light energy, and a collimator (Figure 1, item 14; col. 6, line 2) in proximity to the scintillation crystal and opposite the array of photodetectors for intercepting and eliminating gamma photon emissions that are not traveling in an accepted direction; wherein at least one portion of the surface of the scintillation crystal yields a substantially different light response function for the

generated light energy than at least another portion of the crystal (caused by etching patterns; col. 3, lines 11-21) and wherein a glass is positioned between the scintillation crystal and the array of photodetectors (Figure 1, item 17; col. 5, lines 13-16).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 3, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hefetz et al. (US 6,369,391 B1) in view of Akselrod (US 2004/0159803 A).

Regarding claim 3, Hefetz et al. teach the limitations set forth in claim 1. Hefetz et al. further teach portions of the scintillate having reflective coatings and does not specify all of these areas being substantially aligned with a respective central axis of a photodetector of the array of photodetectors. Hefetz et al. do not disclose expressly a plurality of polished surfaces. One of ordinary skill in the art would recognize that polished surfaces like reflective surfaces are utilized to reflect light in a desired manner. One of ordinary skill in the art would further recognize that polished crystal surfaces as suggested by Akselrod (page 5, paragraph 72) are conventionally used as a means for controlling the light response function. At the time the invention was made, one of ordinary skill in the art would be motivated to modify the invention of Hefetz et al. in view of Akselrod such that a plurality of uniformly polished areas replaced the areas having a

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reflective coating. One of ordinary skill in the art would be motivated to modify the invention in such a way since the manufacturing process would be simplified.

Regarding claim 17, Hefetz et al. teach the limitations set forth in claim 14.

Hefetz et al. further teach providing a surface in which portions are reflective, and as such yield different light response functions for light energy generated by the scintillation crystal than at least another portion of the scintillation crystal. Hefetz et al. do not disclose providing a surface in which certain portions are polished. One of ordinary skill in the art would recognize that both polished and reflective surfaces perform the function of directing the light in a desired manner. One of skill in the art would further recognize polished surfaces as a common feature in the art. At the time the invention was made, it would be obvious to one of ordinary skill in the art to take the invention of Hefetz et al. and modify it such that polished surfaces were utilized in place of reflective surfaces, as is conventional in the art, for example, Akselrod (US 2004/0159803 A) such that the manufacturing process is simplified.

Regarding claim 19, Hefetz et al. in view of Akselrod teach the limitations set forth in claim 17. Hefetz et al. further teach portions of the scintillate having reflective coatings and does not specify all of these areas being substantially aligned with a respective central axis of a photodetector of the array of photodetectors. Hefetz et al. do not disclose expressly a plurality of polished surfaces. One of ordinary skill in the art would recognize that polished surfaces like reflective surfaces are utilized to reflect light in a desired manner. One of ordinary skill in the art would further recognize that polished crystal surfaces as suggested by Akselrod (page 5, paragraph 72) are

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conventionally used as a means for controlling the light response function. At the time the invention was made, one of ordinary skill in the art would be motivated to modify the invention of Hefetz et al. in view of Akselrod such that a plurality of uniformly polished areas replaced the areas having a reflective coating. One of ordinary skill in the art would be motivated to modify the invention in such a way since the manufacturing process would be simplified.

4. Claims 7, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hefetz et al. (US 6,369,391 B1) in view of Majewski (5,864,141).

Regarding claim 7, Hefetz et al. teach the limitations set forth in claim 7. Hefetz et al. do not disclose expressly a shield that also surrounds the circuitry. Majewski (5,864,141) teaches a lead shield (screen; Figure 1, item 14; column 3, line 64) surrounding a scintillation crystal (Figure 1, item 18; column 4, line 26), array of photodetectors (photomultiplier tubes; Figure 1, item 28, column 4, lines 25-26), and associated circuitry (anode wires and amplifiers). It would have been obvious to one having ordinary skill in the art at the time the invention was made to enclose the invention as disclosed by Hefetz with the lead shield as disclosed by Majewski in order to decrease the amount of unwanted background radiation from reaching the detector elements.

Regarding claims 9, Hefetz et al. teach scintillators for use in gamma cameras for detecting gamma photon emissions and generating electrical energy (col. 6, lines 50-51) comprising: an array of photodetectors (Figure 1, item 16) and associated circuitry

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(Figure 1, item 18) for detecting and converting light energy to electrical energy (col. 6, lines 4-7); and a single scintillation crystal (Figure 1, item 12; col. 5, line 67) positioned in proximity to the array of photodetectors for detecting gamma photon emissions and generating light energy, wherein at least one portion of the surface of the scintillation crystal yields a substantially different light response function for the generated light energy than at least another portion of the crystal (caused by etching patterns; col. 3, lines 11-21). Hefetz et al. further teach a collimator (Figure 1, item 14; col. 6, line 2). Hefetz et al. do not disclose expressly a shield that also surrounds the circuitry. Majewski (5,864,141) teaches a lead shield (screen; Figure 1, item 14; column 3, line 64) surrounding a scintillation crystal (Figure 1, item 18; column 4, line 26), array of photodetectors (photomultiplier tubes; Figure 1, item 28, column 4, lines 25-26), and associated circuitry (anode wires and amplifiers). It would have been obvious to one having ordinary skill in the art at the time the invention was made to enclose the invention as disclosed by Hefetz et al. with the lead shield as disclosed by Majewski in order to decrease the amount of unwanted background radiation from reaching the detector elements.

Regarding claim 15, Hefetz et al. teach the limitations set forth in claim 14. Hefetz et al. do not disclose expressly a shield that also surrounds the circuitry. Majewski (5,864,141) teaches a lead shield (screen; Figure 1, item 14; column 3, line 64) surrounding a scintillation crystal (Figure 1, item 18; column 4, line 26), array of photodetectors (photomultiplier tubes; Figure 1, item 28, column 4, lines 25-26), and associated circuitry (anode wires and amplifiers). It would have been obvious to one

having ordinary skill in the art at the time the invention was made to enclose the invention as disclosed by Hefetz et al. with the lead shield as disclosed by Majewski in order to decrease the amount of unwanted background radiation from reaching the detector elements.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hefetz et al. (US 6,369,391 B1) in view of Majewski (5,864,141) and further in view of Akselrod (US 2004/0159803 A).

Regarding claim 11, Hefetz et al in view of Majewski teach the limitations set forth in claim 9. Hefetz et al. further teach portions of the scintillator having reflective coatings and does not specify all of these areas being substantially aligned with a respective central axis of a photodetector of the array of photodetectors. Hefetz et al. in view of Majeswki do not disclose expressly a plurality of polished surfaces. One of ordinary skill in the art would recognize that polished surfaces like reflective surfaces are utilized to reflect light in a desired manner. One of ordinary skill in the art would further recognize that polished crystal surfaces as suggested by Akselrod (page 5, paragraph 72) are conventionally used as a means for controlling the light response function. At the time the invention was made, one of ordinary skill in the art would be motivated to modify the invention of Hefetz et al. in view of Akselrod such that a plurality of uniformly polished areas replaced the areas having a reflective coating. One of ordinary skill in the art would be motivated to modify the invention in such a way since the manufacturing process would be simplified.

6. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hefetz et al. (US 6,369,391 B1) in view of Majewski (5,864,141) and further in view of Rozsa (US 6,534,771).

Regarding claim 13, Hefetz et al in view of Majewski teach the limitations set forth in claims 1 and 9, respectively. Hefetz et al. in view of Majeswki do not disclose expressly the crystal material. Rozsa teaches a gamma camera system in which the scintillation crystal is a sodium iodide-thallium activated (NaI(Tl)) crystal (column 2, lines 66-67). At the time the invention was made, it would be obvious to one of ordinary skill in the art to modify the invention of Hefetz in view of Majewski such that the crystal was a sodium iodide-thallium activated (NaI(Tl)) crystal. One of ordinary skill in the art would be motivated to utilize such a crystal since such a crystal is conventional in the art.

#### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

8. Claims 2, 4, 10, 12, 18, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 2, 10, and 18, prior art such as Akselrod et al. teach uniformly polishing a scintillation crystal on two sides (page 5, paragraph 72). Prior art however, fails to teach or make obvious the gamma camera wherein at least one portion of the scintillation crystal includes a plurality of uniformly polished areas, and wherein each of the plurality of uniformly polished areas is substantially aligned with a central axis of a photodetector.

Regarding claims 4, 12, and 20, and prior art fails to teach or make obvious the gamma camera wherein at least one portion of the scintillation crystal includes a first polished area of the scintillation crystal and at least another portion of the scintillation crystal includes a second polished area of the scintillation crystal, and wherein the first and the second areas are polished differently to yield different light response functions for the generated light energy.

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Zettl whose telephone number is (571) 272-6007. The examiner can normally be reached on M-F 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MZ



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